CAI-2003-17

UNITED STATES
DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION

COAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Underground Coal Mine

Fatal Powered Haulage Accident
June 20, 2003

Beechfork Mine
Bledsoe Coal Corporation
Helton, Leslie County, Kentucky
ID No. 15-18376

Accident Investigators

Lester Cox, Jr.
Coal Mine Safety and Health Inspector

Alice Blanton
Coal Mine Safety and Health Inspector

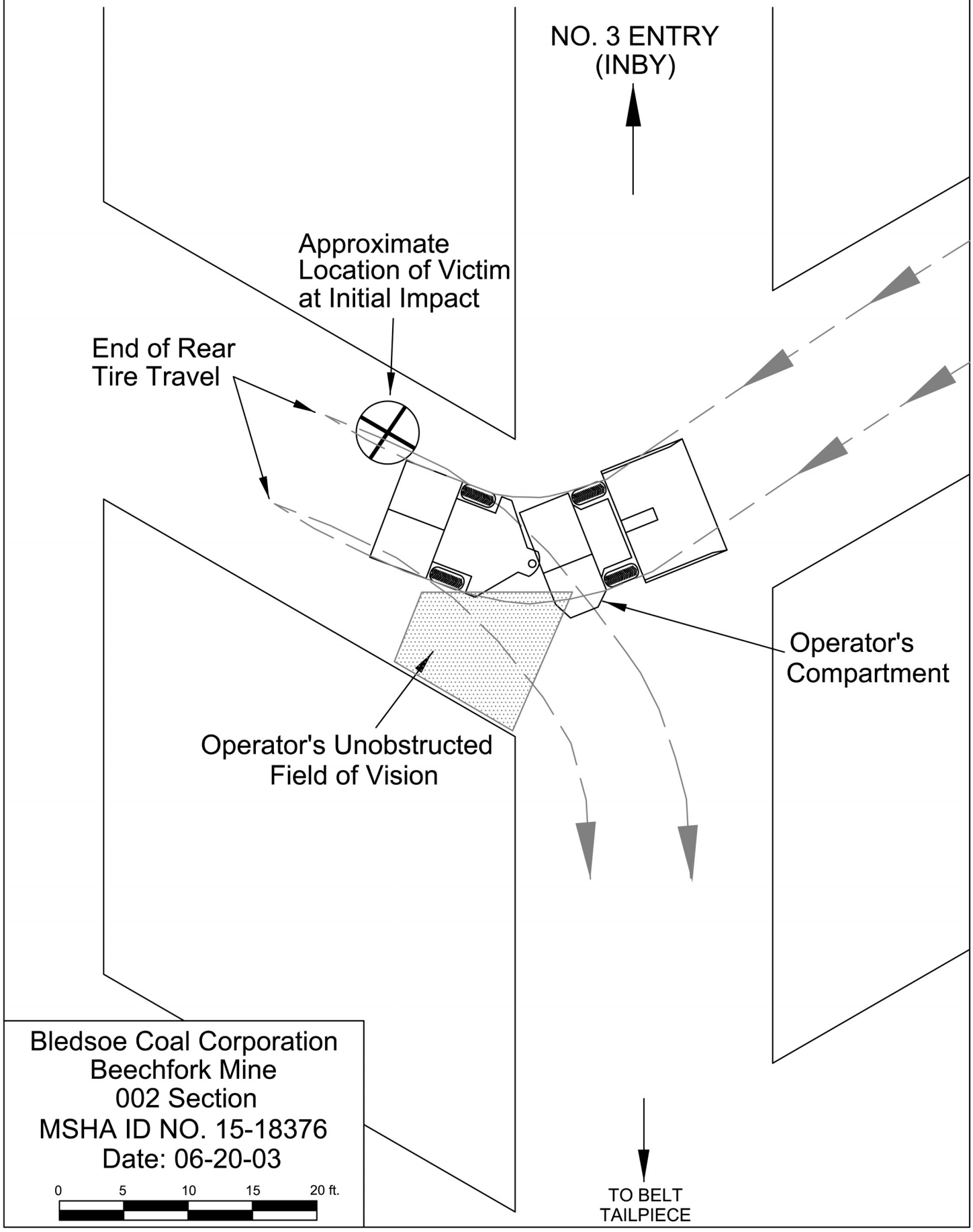
Foster Brock
Coal Mine Safety and Health Inspector, Electrical

Originating Office
Mine Safety and Health Administration
District 7
3837 S. U.S. Hwy. 25 E
Barbourville, Ky. 40906
Joseph W. Pavlovich, District Manager

Report Release Date: August 22, 2003

TABLE OF CONTENTS

Location of Scoop and Victim at Time of Accident



OVERVIEW

On June 20, 2003, at approximately 1:45 a.m., Jonathan W. McIntosh, age 32, a third shift section foreman employed by Bledsoe Coal Corporation, was fatally injured when he was inadvertently ran over by a S&S 484 battery-powered rubber-tire scoop. There was no eyewitness to the accident.

The investigation revealed that the lights provided for the scoop had been relocated, only two of the four lights provided were operative, and there were no reflectors on the front and rear of the scoop. The crosscuts are formed at 60 degree angles to the entries and offset from corner to corner by ten feet. The scoop operators' field of vision was through a 10-½ inch opening between the canopy and the top of the scoop frame.

McIntosh had a total of 13 years and eight months mining experience, with three years as a section foreman.

GENERAL INFORMATION

The Beechfork Mine is an underground coal mine, owned and operated by Bledsoe Coal Corporation located in Helton, Leslie County, Kentucky. Coal is mined from the Hazard #4 coal seam on two advancing sections utilizing the room and pillar method with continuous mining machines and attached mobile bridge continuous haulage systems. The mine normally operates two production shifts and one maintenance shift per day, six days per week. The mine employs 91 persons and produces an average of 4,000 tons of coal daily, with a total liberation of 46,267 cubic feet of methane every 24 hours.

The principal officers for Bledsoe Coal Corporation are:

Charles G. Snavely .....President

David Osborne .....General Manager

Larry Bowling..... Superintendent

Pearl Farler.....Safety Director

The last regular inspection of this operation was completed on March 3, 2003. A regular inspection was ongoing at the time of the accident. The Non-Fatal Days Lost (NFDL) Incidence rate for the quarter prior to the accident was 18.19 at the Beechfork Mine and 5.89 for the nation's underground coal mines.

DESCRIPTION OF THE ACCIDENT

On Thursday, June 19, 2003, Jonathan W. McIntosh (victim) started his shift at approximately 11:00 p.m. at the Beechfork Mine, located in Helton, Kentucky. McIntosh was the third shift section foreman on the 002 Mechanized Mining Unit (MMU), located on the 3 Right Panel of the Last Resort sub-mains. The third shift production/maintenance crew, consisting of McIntosh and seven other members, arrived on the section at approximately 11:30 p.m. McIntosh informed the crew that they would be mining coal until 5:00 a.m. and then perform maintenance for the remainder of the shift.

Coal production was initiated utilizing a Joy 14CM-9 remote controlled continuous mining machine with an attached Long-Airdox mobile bridge haulage system. The victim assisted with hanging the ventilation curtain for the No. 3 Right working place at crosscut No. 30. A normal mining cycle was started at this location at approximately 12:44 a.m. as indicated in the victim's notebook. The victim was last seen at approximately 12:45 a.m. walking toward the No. 2 working place by the front mobile bridge carrier operator. After the mining cycle was completed a belt set-up was needed to enable the continuous haulage equipment to reach the working places. At this time, the No. 3 Fletcher single-head roof bolting machine was being used to complete the installation of roof bolts in the No. 4 Right working place at crosscut No. 29. The No. 1 Fletcher single-head roof bolting machine was parked idle in crosscut No. 29 between the Nos. 3 and 4 entries.

The S&S 484 battery-powered, rubber-tired, scoop was then trammed, bucket first, into the No. 4 entry working place with a load of conveyor belt to be used in the belt set-up. The continuous mining machine was trammed from the face of 3 Right working place at crosscut No. 30 to just outby the end of the low-low belt conveyor structure and the No. 3 Fletcher roof bolting machine was moved into the 3 Right working place to install roof bolts. The scoop was then backed, battery-end first, from the No. 4 entry through crosscut No. 29 to a point between the Nos. 2 and 3 entries, where it was turned and trammed outby along the No. 3 entry to the low-low belt tail-roller. The No. 1 Fletcher roof bolting machine was then trammed from the No. 4 entry through crosscut No. 29 and inby along the No. 3 entry to help in the bolting cycle in the No. 3 Right working place. After the conveyor belt was unloaded at the low-low tailpiece, the scoop was trammed inby along the right side of the No. 3 entry for approximately one crosscut and was then used to scoop the roadway back to the low-low tail-roller.

At approximately 1:45 a.m. on June 20, 2003, the scoop was trammed inby along the No. 3 entry and turned, right, into crosscut No. 29, at which time the scoop operator saw McIntosh laying on the mine floor between No.'s 2 and 3 entries. John Bruce, mine emergency technician (MET), who was located at the belt tailpiece, was notified of the accident, gave instructions to get first aid supplies, and went to the scene. He examined the victim for vital signs and found no signs of life. Leslie County EMS ambulance service was notified at approximately 1:50 a.m. and traveled to the site. EMS notified Leslie County coroner Gregory Walker. McIntosh was pronounced dead by Walker.

INVESTIGATION OF THE ACCIDENT

At approximately 2:00 a.m. on Friday, June 20, 2003, Pearl Farler, Safety Director for Bledsoe Coal Corporation, notified Jim Langley, Coal Mine Safety and Health (CMS&H) Supervisor, Barbourville, Kentucky field office that a fatal machinery haulage accident had occurred at the mine. Langley promptly contacted Ronald Burns, CMS&H Supervisor, Foster Brock, CMS&H Electrical Inspector, Lester Cox, CMS&H Inspector, and Alice Blanton, CMS&H Inspector and dispatched them to the scene. Blanton issued an order pursuant to section 103(k) of the Mine Act to ensure the safety of persons at the mine until an investigation of the accident could be completed. Preliminary information was gathered and the accident scene was examined. Measurements were taken for a scaled drawing, and photographs were also taken. Assistance from MSHA's Technical Support was also requested.

On June 21, 2003, Bob Boring, Electrical Engineer, Electrical Safety Division of MSHA's Approval and Certification Center, along with members of the accident investigation team, conducted an on-site investigation and subsequent testing and evaluation of the S&S 484 Scoop. Also noise survey levels were conducted at the scene.

MSHA and the Kentucky Department of Mines and Minerals (KDMM) jointly conducted the investigation with the assistance of mine management, and other miners. Formal interviews were conducted at the KDMM Barbourville, Kentucky Office on June 21 and 23, 2003. Four interviews were conducted. None of those interviewed requested that their statements be kept confidential.

DISCUSSION

Accident Location

The accident occurred in crosscut 29, between the Nos. 2 and 3 entries, on the 002 MMU located on the 3 Right Panel of the Last Resort sub-mains, a distance of approximately 13,200 feet from the surface. The mine height ranged from 48 to 52 inches in the vicinity of crosscut 29. Evidence observed in crosscut 29 indicated that the victim was run over twice: once as the scoop was trammed into the crosscut from the No. 3 entry and a second time as it was trammed out of the crosscut into the No. 3 entry. Scoop tire tracks indicated that the scoop traveled battery-end first into crosscut 29 from the No. 3 entry for a distance of approximately 16 feet. The point of the first impact was approximately thirteen feet within the crosscut. The victims cap lamp, mining hat, vise grips, and pick hammer were found scattered for a distance of approximately nine feet from the first point of impact to the location of where the victim was found. Interview statements indicated that the scoop entered this area once.

Crosscuts on the 002 MMU, including crosscut 29, were turned at 60-degree angles, left and right out of the belt entry. Also, centerlines for crosscuts to the right of the belt were offset ten feet inby those to the left of the belt entry. The scoop had to make an acute right turn as it crossed the No. 3 entry and into the accident site. This would have obscured the scoop

operator's vision along the inby side of the crosscut as the battery-end of the scoop, located on a separate articulated section from the operator's compartment, entered the crosscut.

Mining Machinery

During the investigation, all mobile equipment on the 002 MMU working section were inspected. The only machine showing evidence that it was involved in the accident was a DBT America (S&S Corporation) Model UAT 484, Battery-Powered Scoop Tractor, Serial Number 484-1543, MSHA Approval Number 2G-2831-5. Evidence on the inside sidewall of the battery-end tire opposite the operator's compartment indicated that the victim was hit by this tire.

The scoop was tested at the mine site. The panic bar shutdown, parking brake, service brake, and tram controls were operating properly. However, the lights on the battery-end of the scoop had been relocated from their approved position from battery-end, one on each side of battery box at the bottom of the frame to the top of the frame inby the tires, near the pivot. Also, of the four headlights installed on the scoop, two (one front and one rear headlight, both on the operator's side) were inoperable. Once the lights were repaired and made operative, it was observed the location of the battery-end headlight on the operators' side emitted a glare that was caused by a 3-inch high tire fender, located directly in front of the light. This would be discomforting/distracting to the machine operator. There were no reflectors on the front and rear of the scoop, as required in the approval.

The scoop was equipped with a canopy for the operator's compartment. The scoop operator stated his field of vision while traveling battery-first was directed along his side of the machine toward battery end and he could see the outby corner of the crosscut. (See sketch) In this mining height when a scoop operator is positioned in the operators' deck, his normal body posture would be in a reclining position and his field of vision would be directed along the operator's side of the machine. If the mining height would allow the operator to view over the top of the machine, it was through a 10½-inch opening between the canopy and the top of the scoop frame. However, the top of the scoop batteries were 7½ inches higher than the top of the scoop frame. This was caused by 7½-inch wide metal flanges on both sides of the battery tray that held the Exide E110W-21 (1100 A.H.) Batteries, preventing the battery tray from being completely seated down into the frame of the scoop.

Human Factors

There were no eyewitnesses to the accident. The reason for the victim's presence at the accident location could not be ascertained during the investigation. The victims cap lamp was found in the off position. The cap lamp was tested after the accident and was found to be operative. Lack of lighting on the victim, as well as inadequate lighting and reflective material on the scoop, may have lessened the awareness of both the victim and the scoop operator regarding each other's location. The victim was last observed on the 002 MMU walking toward No. 2 working place at approximately 12:45 a.m. The last recorded notation in his notebook was at 12:44 a.m. Evidence collected during the investigation indicated the victim ran centerlines and marked up the number 1 and 2 face entries prior to the accident.

A review of records and information provided by the company indicated that the victim had received the required training in accordance with Title 30 CFR, Part 48. The results of the noise surveys conducted during the accident investigation indicated that the approaching scoop could be heard over the noise generated by the roof-bolting machines.

ROOT CAUSE ANALYSIS

A root cause analysis was conducted. The following causal factors were identified.

Causal Factor: The lights provided for the battery-end S&S 484, Battery-Powered Scoop, Serial Number 484-1543, MSHA Approval Number 2G-2831-5, had been relocated without an MSHA approved Field Modification Change.

Corrective Action: Lights should be installed as approved. Such components may only be relocated after a Field Modification Change is evaluated and approved by MSHA. Operators should apply for such approvals when considering improvements to mining equipment.

Causal Factor: Two of the four lights provided for the S&S 484, Battery-Powered Scoop, Serial Number 484-1543, MSHA Approval Number 2G-2831-5, were not being maintained in an operative condition. The two lights were located on the operators' side, front and rear of the scoop.

Corrective Action: Lights installed under the MSHA Approval Number 2G-2831-5 shall be well maintained and kept in an operative condition.

Causal Factor: The MSHA Approval Number 2G-2831-5 for the S&S 484, Battery-Powered Scoop, Serial Number 484-1543, which requires that red light-reflecting tape or reflectors be provided at two separate locations on both ends of the scoop, were not provided.

Corrective Action: Red light-reflecting tape or reflectors (a minimum area of 10 square inches) shall be installed and maintained on the S&S 484 Scoop as required by the approval.

Causal Factor: Restricted field of vision by the equipment operator and the awareness of the equipment location and route of travel by the victim.

Corrective Action: The operator shall modify the 7 1/2 inch metal flange present on both sides of the battery tray to allow it to be completely seated down into the frame of the scoop. Safety talks were conducted with all miners at the mine site. Emphasizing the urgency of the awareness of personal interaction with mobile equipment, whether being on foot or being the equipment operator.

CONCLUSION

The third shift section foreman, Jonathan W. McIntosh received fatal crushing injuries when he was inadvertently ran over by the S&S 484 battery-powered, rubber-tired scoop, while the scoop was being trammed into the No. 29, 3 left crosscut, on the 002 MMU. There were no eyewitnesses to the accident. The victim's activities at the time of the accident could not be ascertained during the investigation. It is the consensus of the accident investigation team that the accident occurred due to the convergency of several factors existing at the time of the accident. Those factors are: 1) the mine operator had failed to maintain the 484 S&S Battery-Powered Scoop, as required by the MSHA Approval Number 2G-2831-5. The lights provided for the scoop had been relocated, only two of the four lights provided were operative and there were no reflectors on the front and rear of the scoop. 2) The scoop operator's field of vision. 3) The scoop operators lack of knowledge as to the location of the victim in the crosscut at the time of the accident.

ENFORCEMENT ACTIONS

Order No. 7533727 was issued to Bledsoe Coal Corporation on June 20, 2003, under the provisions of Section 103(k) of the Mine Act:

This mine has experienced a fatal haulage accident on the 002 section; This order is issued to assure the safety of any person in the coal mine until an examination or investigation is made to determine that the entire mine is safe. Only those persons selected from company officials, state officials, the miner's representative and other persons who are deemed by MSHA to have information relevant to the investigation may enter or remain in the affected area.

104(a) Citation No. 7533732 was issued to Bledsoe Coal Corporation citing a violation of 30 CFR 75.503, (Part 18.81 and 18.20(g)):

The accident investigation revealed the S&S 484 Battery-Powered Rubber-Tired Scoop, Serial Number 484-1543, approved under MSHA Approval Number 2G-2831-5, is not maintained in permissible condition. The mine operator has failed to submit to MSHA a Field Modification of approved permissible equipment as required in Title 30 CFR, Part 18.81. The mine operator has relocated two battery-end lights from their original approved (alternate) location as specified in the MSHA Approval, to the top of the scoop frame. Also, as required in Title 30 CFR, Part 18.20(g); (1) Two of the four lights provided, one on the front and one on the rear of the operators' side, were inoperative. (2) There are no reflectors or red light-reflecting tape (a minimum area of 10 square inches) provided at two separate locations on both the front and rear of the scoop. This scoop was involved in a fatal haulage accident while being used on the 002 MMU on Friday, June 20, 2003.

APPENDIX A

List of persons furnishing information and/or present during the investigation.

Bledsoe Coal Corporation

Larry Bowling	Superintendent
Pearl Farler	Safety Director

Kentucky Department of Mines and Minerals

Tracy Stumbo	Chief Accident Investigator
Johnny Greene	Deputy Chief Accident Investigator
Neil Honeycutt	Surface Safety Analysis
Bob Banks	Mine Inspector
Robert Ashworth	Mine Inspector
Victor Campbell	Electrical Inspector
David Mullins	Inspector Principal

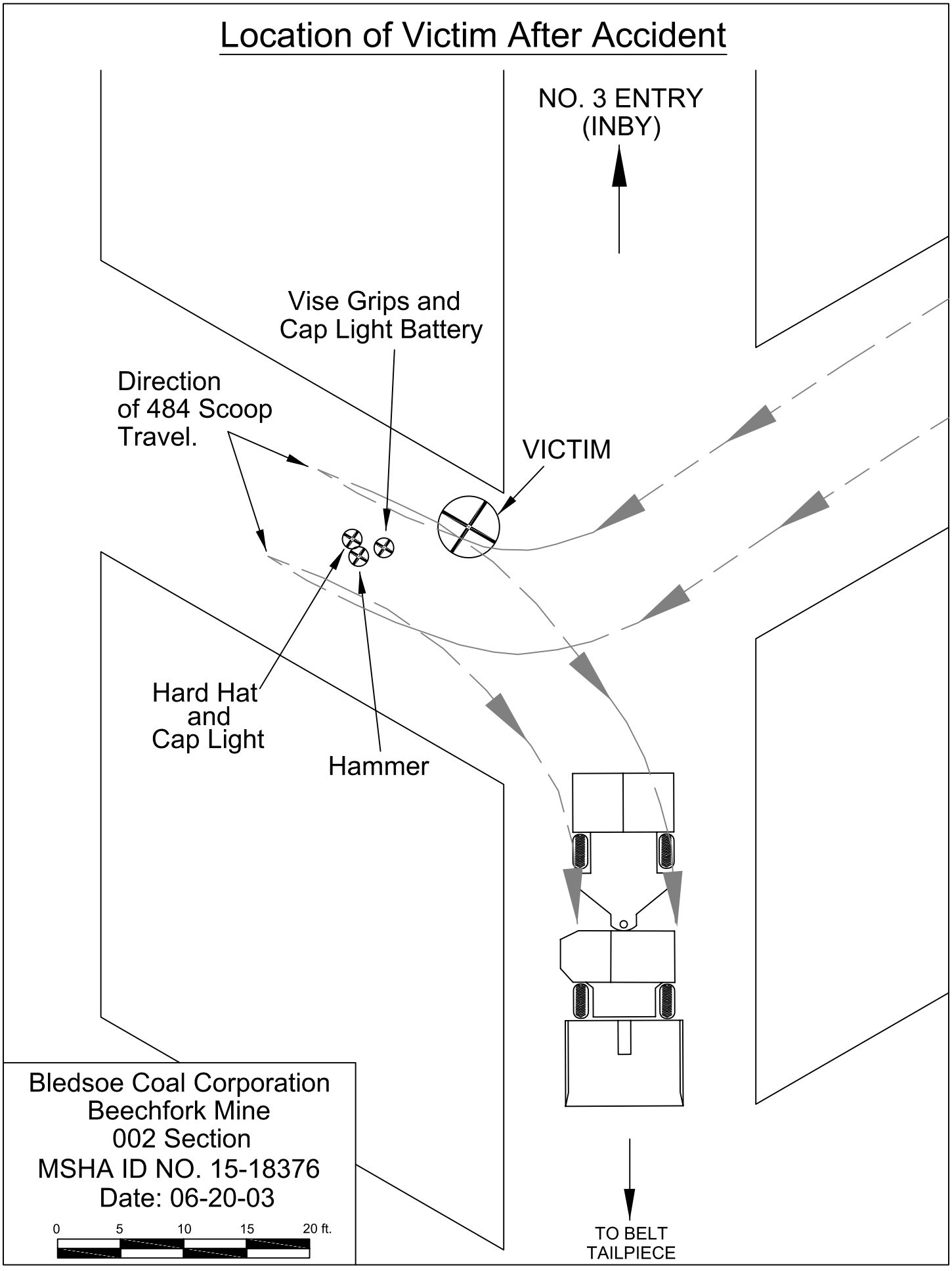
Mine Safety and Health Administration

Ronald Burns	Supervisory, CMS&H
Lester Cox, Jr.	CMS&H Inspector/Accident Investigator
Foster Brock	CMS&H Electrical Inspector
Marvin Hoskins	CMS&H Inspector
Carla Marcum	CMS&H Ventilation Specialist
Alice Blanton	CMS&H Inspector/Accident Investigator
Bob Boring	Electrical Engineer, Electrical Safety Division MSHA Approval and Certification Center

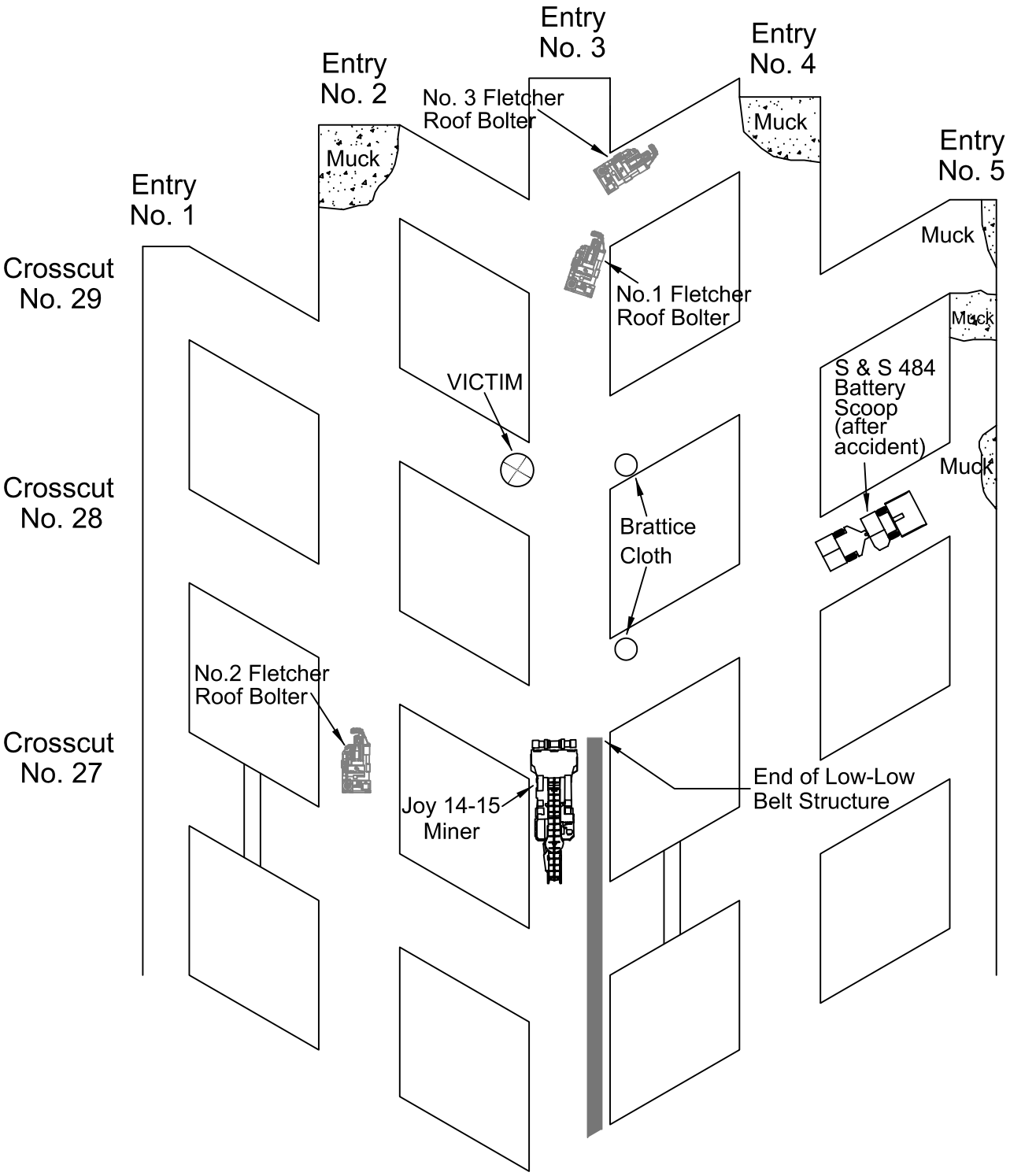
List of Persons Interviewed

Mike Campbell	Roof Bolter Operator	Bledsoe Coal Corporation
Christopher Henson	Roof Bolter Operator	Bledsoe Coal Corporation
Anthony Howard	Scoop Operator	Bledsoe Coal Corporation
John Bruce	Electrician (MET)	Bledsoe Coal Corporation

Location of Victim After Accident



Equipment Location at theTime of Investigation



Bledsoe Coal Corporation
Beechfork Mine
002 Section
MSHA ID NO. 15-18376
Date: 06-20-03

0 20 40 60 80 ft.